

Ceneda, are some of the old State forests of Venice, and the boundary marks of the republic cut in the live rock were shown to me eight years ago on the south-east limit of the Cansiglio forest. High up on a tributary of the Piave, near the small town of Auronzo, is the Sommadida forest, of limited extent, but on deep rich soil, and with exceedingly luxuriant growth of spruce, larch, and other trees. The larch is here in its native home, and I have never seen finer specimens, both as regards length of stem and quality of the wood. The mast pieces for the Venetian Navy were partly brought from this forest. I understand that it is not intended to alienate Sommadida, which I fear may be the case with many of the other old Venetian State forests. Mast pieces for the dockyard at Venice, however, were in 1865 brought at less cost by rail from the forests of Galicia than down the Piave from Sommadida. Such has been the effect of railways upon timber trade. The wine casks for Hock and Moselle are no longer exclusively made of oak from the Spessart or the forests near the Rhine, for the oak imported by rail from Hungary and Dalmatia at present undersells the home grown timber, and similar changes and fluctuations will from time to time be experienced in India. So much, however, is certain, that the demand in India for timber, bamboos, wood, fuel, and charcoal, whether for export, for building, or for the use of steamers, railways, or ironworks, is not likely to decrease, but is certain to increase steadily. Nor is the law that an increased demand will always produce an increased supply, likely to hold good in the case of a timber crop, which requires 100 years or more to attain maturity. The formation and consolidation of public forests, therefore, managed by State forest officers, which has for some time been progressing in most provinces against much opposition, will eventually be recognised as a source of prosperity and comfort by the manufacturing, trading, and agricultural population of India.

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## NOTES.

p. 166. *Forest Management in Switzerland*.—Forest officers, who have had the privilege of serving in the Himalaya will find much of special interest in the Swiss Alps. The system of management in the Bavarian Alps, it is true, is more perfect throughout, but in Switzerland the difficulties in the way of forest conservancy have been much greater, and offer many points of analogy with those obstacles which impede progress in our Himalayan forests. There is no lack of forest rules and

forest laws in Switzerland; indeed, in several cantons the existing laws prescribe a strict and detailed supervision over the management of forests, not only of villages, associations, and other public bodies, but also of private proprietors. And in some cantons, for instance, Bern and Zürich, the forest laws are fairly and strictly carried out; in others, however, they are nearly a dead letter, and in some there is no forest legislation at all. The greatest difficulty of all is the unregulated pastures of cattle and goats throughout the forests. The evil consequences of this state of things has long been felt keenly by many public spirited men, and the *Swiss Association of Foresters* has during the last 30 years unceasingly urged this matter upon the attention of the public, the governments of cantons, and the Federal Government. In 1858 the matter was at last taken up by the Federal Council, and a resolution was passed to institute a regular and systematic inquiry into the state of the Alpine forests. This inquiry was entrusted to a Commission, consisting of two engineers, one geologist, and one forest officer, the head of forest administration in the canton of Zürich, Oberforstmeister Landolt. The result of their labours, which occupied them during three years, are laid down in an excellent report, published at Bern in 1862. Proposals for a national forest legislation for the whole country have since that time repeatedly been made in the Federal Council, and the question will no doubt eventually be settled in a satisfactory manner. Meanwhile a good deal is being done through the exertions of the *Association of Foresters* and by the forest officers of certain cantons, particularly of Bern and Zürich, for the maintenance and improvement of existing forests; for the replanting of barren hills, and the fixing of loose soil on the sides and in the beds of valleys, ravines, and torrents. Those who may desire to study the forest question in Switzerland will find further details and useful hints in an article by Dr. von Berg, entitled "*Die forstlichen Verhältnisse der Schweiz*," which appeared in 1868 in the 18th volume of the *Tharander Forstliches Jahrbuch*.

p. 170. *Beech Woods of Buckinghamshire*.—From an interesting paper on these woods and on cognate forest matters, published in the *Transactions of the Institution of Surveyors*, session 1872-73, vol. V., p. 189, I gather that the consumption of beech timber for the chair trade in the town and neighbourhood of High Wycombe, and the manufacture of wooden ware and turnery in and around Chesham is estimated at 10,400 loads (of 50 ft.) annually at High Wycombe, and 2,900 loads in Chesham, that the annual cuttings are now sold at the rate of from 1s. to 1s. 6d. per cubic foot of beech timber, and that over large extents of this wood the regular annual thinnings have of late years realized as much as 1l. per acre. In some of these woods visited by me last year the yield was stated to be much less, amounting to about 10-12 cubic feet per acre annually, realizing about 10s.

p. 171. *Windsor Great Park and Forest*.—These splendid woods are particularly instructive, because their history has been carefully studied. The results of these researches are recorded in a large work by Mr. William Menzies, the Deputy Surveyor of the Park and Forest, entitled *The History of Windsor Great Park and Windsor Forest*, 1864. Iron pillars with the dates of planting have been put up in the park at each plantation, and a table at the end of the book gives a list of plantations with their acreage, the number, average size, and cubic contents of trees per acre (in 1862). A copy of this table, or an extract will be found a most useful guide in visiting the different plantations. The oldest plantation (or rather sowing of acorns) dates back as far as 1580; its extent is 13 acres, and apart from the annual ring, the historical evidence, given on page 3 of Mr. Menzies' work, seems to show con-

clusively that this plot was sown in the 22nd year of Queen Elizabeth's reign. Mr. Menzies adds that this is the oldest authenticated regular plantation in England. It may interest some to know that in Germany the earliest attempts at forming new forests and regenerating existing forests by sowing and planting on a large scale was made in the 14th century. (Scotch fir, near Nürnberg in 1368; plantations near Görlitz (Lausitz) before 1329; see Leo, in *Monatschrift für des Forst- und Jagdwesen*, 1871, p. 78; and Dr. von Berg, *Geschichte der Deutschen Wälder*, 1871, p. 351.) Most instructive and at the same time picturesque are the old trees of beech and oak, the remains of the original natural forest, now mostly planted up with oak. The planting of the magnificent avenue of elms, called the Long Walk, goes back to 1680, and there are large specimens of the *Pinus pinaster*, and splendid groups of the Lebanon Cedar, with tall clean stems, like the Deodar in the Himalaya, in the Belvidere district, planted about 1760. There is thus ample material for studying the growth of both indigenous and exotic trees. Of the latter, I would particularly draw attention to the Spanish chestnut, planted extensively, chiefly mixed with oak, since the close of the 17th century. The chestnut here grows more rapidly than the oak, and attains a larger size in the same time, but when old, the wood is often unsound. The principal formation of the Great Park is the London clay, resting on plastic clay, but the elevated points are capped with strata of Bagshot sand, often of considerable extent. This mixture of clay and sand produces a considerable variety of soils, with a marked effect on the arborescent vegetation. In Windsor Forest, oak is the principal tree, where the clay is the chief formation, and there are several thousand acres of oak plantations, which were made between 1817 and 1825. The southern part, however, where the Bagshot sand prevails, and the adjoining Sandhurst woods, are mainly stocked with Scotch fir. The vicinity to Windsor Park of the Indian Civil Engineering College, at Cooper's Hill, is a circumstance which forest officers on leave might well take advantage of, by fixing their residence for a time in the vicinity of Egham, attending some of the public lectures delivered at the College, and possibly, if leave can be obtained, the surveying, drawing, and some of the other classes.

p. 174. *Forest Administration in France*.—This has hitherto been under the control of the Finance Ministry, but proposals have repeatedly been made, and with particular force in December last, to the National Assembly, for its transfer to the Ministry of Agriculture and Commerce, on the ground that the administration of the public forests ought to be guided, not so much by the desire of deriving from them the greatest possible amount of present revenue, but by a due regard for the future welfare of the country in the matter of maintaining and increasing the supply of wood and timber, and of protecting the mountainous parts of France against the evil effects of denudation. The report on this subject by the Special Commission of the Assembly, which appeared in the *Journal Officiel de la Republique Francais*, of 30th December 1872 and 9th January 1873, contains much interesting statistical information, and an analysis of the financial results of several large sales of State forest property effected since 1860. According to that report, the present forest area of France (in round numbers) stands as follows:—

State forests	-	-	-	900,000 hectares.
Communal forests	-	-	-	2,000,000 „
Private forests	-	-	-	6,000,000 „
Total	-	-	-	<u>8,900,000</u> „

p. 196. *Forests in the Italian Provinces of Treviso, Belluno, and Udine*—The *Cansiglio* Forest occupies an elevated undulating plateau where the boundaries of the three provinces meet, but the largest portion is in the province of Belluno, area 7,245 hectares, of which 5,378 are stocked with forest, partly beech pure, partly beech mixed with spruce and silver fir, the remainder being pasture land. A portion of the beech timber is worked up on the spot by sieve makers, who purchase the tallest and cleanest stems to split them up into thin flexible planks, of which grain sieves and similar articles are made. The residence of the forest inspector in charge is, or was until lately, Vittorio, in the province of Treviso *Montello*, on low hills near the Piave river, between Ciano and Nerves district of Montebelluna, province Treviso, mainly consists of oak, its area is 6,230 hectares. The residence of the inspector in charge is (or was until lately) Giavera, and is to be transferred to Treviso. *Sommadida* district Auronzo, province Belluno, area 1,586 hectares, of which, however, 382 hectares only are stocked with forest.

These are the principal State forests in these provinces, the Communal forests mentioned on page 191 are situated in the following districts; they are mainly stocked with spruce:—

		Communal.	Private Forests.
Province Belluno, Pieve di Cadore	-	11,724 hect.	2,043 hect.
Auronzo	-	20,516 "	1,680 "
"          Udine, Tolmezzo	-	26,751 "	12,387 "
Ampezzo	-	19,238 "	3,956 "

The inspectors who exercise the general control over these forests reside at Belluno and Udine. The best season to visit them is during May and June, when the lumber work is in full swing. The yield of these forests is stated to be 400,000 logs annually. The floating down the Piave river is facilitated by storing up water in a large reservoir near Dosoleto, in the parish of Comelico Superiore (district Auronzo), and lower down the river, at Perarolo, there is a large permanent rake across the river, by which the logs are caught before being rafted.

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